



Severe Weather Awareness Week!!

National Weather Service Indianapolis

March 2 - 8, 2003

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Governor Frank O'Bannon has proclaimed March 2 - 8, 2003 as Severe Weather Awareness Week in Indiana. The National Weather Service, in conjunction with the Indiana State Police, Indiana State Emergency Management, the Indiana Dept. of Education, the Broadcast Media across Indiana, and Amateur Radio Operators will conduct a statewide test of communication systems on March 5, 2003.

The goal of Severe Weather Awareness Week is to better educate everyone to the hazards of extreme weather, including tornadoes, and to help everyone be prepared should severe weather occur.

This packet contains information about severe weather terms, safety rules, and some weather related internet links. News releases will also be faxed and emailed. Public Information Statements will be issued daily, each covering a different topic of severe weather and various partners' roles. Your local National Weather Service office will be available throughout the week for interviews or questions.

Statewide Tornado Drills on March 5, 2003

Two test drills will be conducted on March 5 and consist of TEST TORNADO WARNINGS issued by each local National Weather Service Office which serves Indiana.



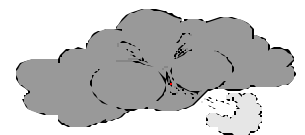
The first drill will take place between 200 PM and 230 PM EST with the NWS offices in Indianapolis, North Webster, Chicago, Wilmington, OH, Louisville, KY, and Paducah, KY issuing warnings for the areas each serves in Indiana. The second drill duplicates the first drill but will be conducted between 700 PM and 730 PM EST.

The test warnings will be distributed just like actual tornado warnings through the National Warning System Hotline, the NOAA Weather Wire Service, news wire services, and broadcast live on the NOAA Weather Radio using the Tone Alert and Emergency Alert System (EAS). Cable TV, broadcast TV stations and radio stations should simulcast the TEST WARNING messages from the NWS weather radio or Emergency Alert System, or the messages should be read by their broadcasters. **Please note, for EAS, the RMT code (Required Monthly Test) or RWT (Required Weekly Test) will be used to transmit the tornado warning NOT the TOR code. Your local NWS office may use the RWT. To ensure warning receipt, make sure your EAS equipment can accept either the RMT or RWT from the NWS. NWS Indianapolis will use the RMT.**

IF WEATHER POSTPONES THE TEST, THE MAKE-UP DRILL DAY IS THURSDAY MARCH 6. If you have any problems with the drill (i.e. you did not hear the tone alert or the broadcast) please contact your local National Weather Service Office. In Central Indiana, call Dave Tucek, 317-856-0361 ext. 726 or <http://www.crh.noaa.gov/ind>



Estimating Wind Speed

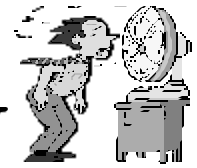


Most wind damage from thunderstorms is caused by straight-line winds (also known as "downbursts"). When reporting wind speed, remember to include whether the report was measured or estimated, and describe any damage. If you cannot measure the wind speed, use the table below:

25-30 mph: large branches move; whistling heard in wires.
40-45 mph: twigs and small branches break; walking impeded.
55-65 mph: moderate structural and tree damage occur.

30-40 mph: whole trees move.
45-55 mph: larger branches and weak limbs may break; slight structural damage occurs.
65 mph + : heavy to severe structural and tree damage occur.

Heat Wave



When the temperature rises this summer, will you be prepared to handle the heat? From 1936 through 1975, nearly 20,000 people in the United States died due to heat and solar radiation effects. Who knows how many other heat related deaths have gone unrecorded. The following Heat Index (HI) was devised by the National Weather Service in order to bring to light the dangers of heat. It is important to know that the HI was devised for shady, light wind conditions. Exposure to full sun can increase HI values by as much as 15° F. Below are some tips to keep in mind when the mercury begins to rise. See <http://www.redcross.org> for further information.

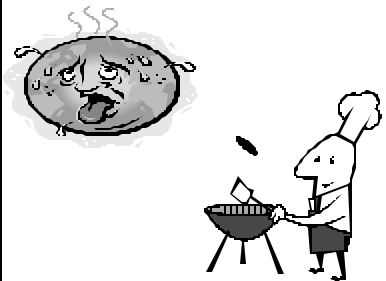
- ☀ Drink Plenty of fluids, even if you aren't thirsty.
- ☀ Wear lightweight, light-colored clothing. Light colors will reflect away some of the sun's energy.
- ☀ Avoid strenuous activity. If you must do strenuous activity, do it during the coolest part of the day, which is usually in the morning between 4 a.m. and 7 a.m.

Heat Index Chart (Temperature & Relative Humidity)

RH (%)	T	E	M	P	E	R	A	T	U	R	E						
	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	
90	119	123	128	132	137	141	146	152	157	163	168	174	180	186	193	199	
85	115	119	123	127	132	136	141	145	150	155	161	166	172	178	184	190	
80	112	115	119	123	127	131	135	140	144	149	154	159	164	169	175	180	
75	109	112	115	119	122	126	130	134	138	143	147	152	156	161	166	171	
70	106	109	112	115	118	122	125	129	133	137	141	145	149	154	158	163	
65	103	106	108	111	114	117	121	124	127	131	135	139	143	147	151	155	
60	100	103	105	108	111	114	116	120	123	126	129	133	136	140	144	148	
55	98	100	103	105	107	110	113	115	118	121	124	127	131	134	137	141	
50	96	98	100	102	104	107	109	112	114	117	119	122	125	128	131	135	
45	94	96	98	100	102	104	106	108	110	113	115	118	120	123	126	129	
40	92	94	96	97	99	101	103	105	107	109	111	113	116	118	121	123	
35	91	92	94	95	97	98	100	102	104	106	107	109	112	114	116	118	
30	89	90	92	93	95	96	98	99	101	102	104	106	108	110	112	114	



In 2001, there were 166 heat related deaths in the U.S. None of these were in Indiana.
Source: NWS



Safe Boating

The weather forecast is an important part of safe boating. The skies may be clear as a bell when you leave the shore, but conditions can quickly change leaving a boater stranded in the middle of a body of water during a fierce storm. One way to prevent disaster is to monitor the NOAA Weather Radio several days before you plan to head out and while you are on the water. Here are a few terms you might hear when listening to a lake forecast (these pertain to the Great Lakes and coastal areas).

Small Craft Advisory: Observed or forecast winds of 18 to 33 knots. Issued up to 12 hours ahead of conditions.

Gale Warning: Observed or forecast winds of 34 to 47 knots.

Special Marine Warning: Observed or forecast winds of 34 knots or more associated with a squall or thunderstorm and expected to last for 2 hours or less.

National Safe Boating Week is May 17-23, 2003 see <http://www.safeboatingcampaign.com/>

AHPS

Advanced Hydrologic Prediction Service

<http://www.crh.noaa.gov/ind/ahps>

AHPS is a web-based suite of forecast products. They display the magnitude and uncertainty of occurrence of floods or droughts, from hours to days and months, in advance.

The current group of AHPS products covers forecast periods ranging from hours to months. It also includes valuable information about the chances of flood or drought. This information is presented through user-friendly graphical products. The products are identified by the logo. The information, such as the flood forecast level to which a river will rise and when it is likely to reach its peak or crest, is shown through graphs. Other information includes,

- 1.) the chance or probability of a river exceeding minor, moderate, or major flooding,
- 2.) the chance of a river exceeding certain level, volume, and flow of water at specific points on the river during 90 day periods, and
- 3.) a map of areas surrounding the forecast point that provides information about major roads, railways, landmarks, etc. likely to be flooded, the levels of past floods, etc.

An additional feature of the AHPS Web site is a map of the river basin and various points along the river for which information is available. The data are not limited to information about floods, but can also provide information about potential droughts. This core suite may change over time reflecting the changing needs communicated by customers.

Flash floods are a function of rainfall duration and intensity. Duration is the amount of time the rain falls and intensity is the rate of rainfall. Topography, soil conditions, and ground cover also play an important role. Most flood deaths are due to **FLASH FLOODS**. Most flash flooding is caused by slow moving thunderstorms, by numerous thunderstorms, one following the next, repeatedly moving over the same area, or by heavy rains from hurricanes and tropical storms.

What to Listen For...

- **HAZARDOUS WEATHER OUTLOOK:** Provides information on conditions which could cause flooding.
- **FLOOD WATCH:** Flooding is possible within the designated WATCH area - be alert.
- **FLASH FLOOD OR FLOOD WARNING:** Flash flooding or flooding has been reported or is imminent - take necessary precautions at once.
- **FLASH FLOOD OR FLOOD STATEMENT:** Follow-up information regarding a flash flood or flood event.

*The rule for being safe in a flooding situation is simple: **HEAD FOR HIGHER GROUND AND STAY AWAY FROM FLOOD WATERS!!***

TAKE ACTION!

When a flash flood WATCH is issued Be alert to signs of flash flooding and be ready to evacuate on a moment's notice.

When a flash flood WARNING is issued for your area, or the moment you realize that a flash flood is imminent, act quickly to save yourself. You may have only SECONDS!

When you receive a FLOOD WARNING:

- If advised to evacuate, do so immediately.
- Move to a safe area before access is cut off by flood water.
- Continue monitoring NOAA Weather Radio, television, or emergency broadcast stations for information.

During the flood:

- Avoid areas subject to sudden flooding.
- If you come upon a flowing stream where water is above your ankles, STOP! Turn around and go another way.
- Do not attempt to drive over a flooded road. The depth of water is not always obvious. The road bed may be washed out under the water, and you could be stranded or trapped.
- Children should NEVER play around high water, storm drains, viaducts, or arroyos.



In 2001, there were 48 flood related fatalities. Of those victims, 50% died in a vehicle trying to cross a flooded roadway, 2 were in Indiana. Source: NWS

NOAA Weather Radio



Have You Heard?



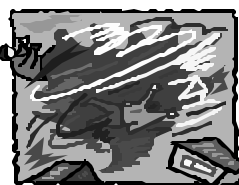
NOAA weather radio is an excellent source for all weather conditions, including current conditions, the latest forecasts, and any watches or warnings in effect. When severe weather is occurring the broadcast program is shortened to carry only the most important information regarding the watches and warnings in effect and actions to stay safe during the storms.

The goal of the National Weather Service and other emergency preparedness agencies is to expand the reach of weather radio broadcasts to 95 percent of the U.S. population.

Source: NWS

For the price of a pair of shoes, NOAA weather radios with new digital technology and battery back-up can provide early warning of severe weather in your area, especially at night. For more information see <http://www.nws.noaa.gov/nwr>.

Tornado Safety



IN HOMES

Get away from windows, doors and outside walls. Go to the basement. If you have no basement, take shelter in a first floor bathroom or closet located near the center of the house. If possible, get under heavy furniture or cover your head with blankets or pillows.

IN SCHOOLS

Go to the lowest floor or basement. Go to small interior rooms or hallways. Stay away from windows. Avoid auditoriums and gymnasiums or structures with wide, free-span roofs which often collapse if struck by tornado force winds.

IN PUBLIC BUILDINGS

Go immediately to a designated shelter area, or to an interior hallway or small room on the lowest floor. Stay away from windows. Do not use elevators. Do not go to your parked car.

IN FACTORIES

Post a lookout. Workers should move quickly to the section of the plant offering the greatest protection in accordance with advance plans.

IN OPEN COUNTRY

Move away from the approaching tornado at right angles, if possible. If there is no time to move or find suitable shelter, leave your car and crouch down in a ditch or depression. Avoid large trees, metal poles and other electric conductors.

IN MOBILE HOMES

Mobile homes should be abandoned immediately! If there is no reinforced building or underground shelter nearby, take cover in a ditch or depression....covering your head with your arms and hands.

IN A LARGE PUBLIC GATHERING PLACE

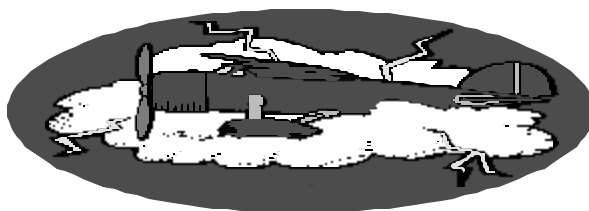
In large public gathering places such as ball parks, stadiums or race tracks, people should follow the guidance announced by officials at the facility.

REMEMBER... A **WATCH** means conditions favor tornado or severe thunderstorm growth so **BE PREPARED**. A **WARNING** means a tornado or severe thunderstorm has been sighted or is imminent so **TAKE ACTION**.

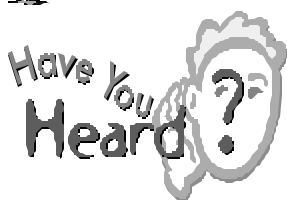
Severe Weather Definitions



1. **TORNADO.** A violently rotating column of air, usually forming a pendant from a cumulonimbus cloud, whose circulation reaches the ground. It nearly always starts as a funnel cloud and may be accompanied by a loud roaring noise. On a local scale, it is the most destructive of all atmospheric phenomena.
2. **FUNNEL CLOUD.** A rotating column of air, forming a pendant from a cumulus or cumulonimbus cloud, whose circulation does not reach the ground.
3. **SEVERE THUNDERSTORM.** A thunderstorm accompanied by winds (sustained or gusts) of 58 mph (50 knots) or more and hail 3/4 inch in diameter or larger. Structural wind damage may be used to infer the occurrence of a severe thunderstorm.
4. **SQUALL LINE.** A line of thunderstorms which extends over tens or even hundreds of miles.
5. **WATERSPOUT.** A rotating column of air, usually forming a pendant from a cumulus or cumulonimbus cloud, which forms over a body of water, and whose circulation reaches the water.
6. **DOWNBURST.** A strong downdraft from a cumulonimbus cloud which induces damaging winds on or near the ground and may or may not be accompanied by rain or hail. Also known as straight line winds.
7. **FLASH FLOOD.** A flood which happens within a few hours after a heavy or excessive rainfall, a dam or levee failure, or sudden release of water impounded by an ice jam. There is nothing in the National Weather Service definition that says a flash flood must be a "wall of water."
8. **TORNADO/SEVERE THUNDERSTORM WATCH.** A product release for public, marine and aviation interests, prepared by the National Storm Prediction Center in Norman, Oklahoma, indicating tornadoes/severe thunderstorms are possible. A tornado watch implies severe thunderstorms are possible too.
9. **TORNADO/SEVERE THUNDERSTORM WARNING.** Releases issued by local National Weather Service Offices to warn the public of an existing tornado/severe thunderstorm or of one suspected to be in existence.



LIGHTNING - ANOTHER DEADLY WEATHER PHENOMENA



Lightning detection systems in the U. S. monitor an average of 25 million cloud to ground lightning strokes each year!
Source: National Weather Service

Lightning is the spectacular result of electrical charge separation and discharge in the atmosphere. Lightning travels from cloud to cloud, cloud to air, and cloud to ground and all can be deadly. If you are close enough to hear thunder you are close enough to be struck by lightning. Avoid being the tallest object in an open area. Stay away from electrical conductors like metallic objects such as bikes, tractors, and metal fences. More information will be provided during the National Lightning Safety Week.

National Lightning Safety Week is June 22-28, 2003. See <http://www.lightningsafety.noaa.gov/index.htm> For more information!





StormReady is a program developed by the National Weather Service aimed at providing communities with the communication and safety skills necessary to save lives and property. Local National Weather Service Offices, working with emergency management and other county officials, will help communities be better prepared for severe weather. StormReady complements the Federal Emergency Management Agency (FEMA) programs designed to help build disaster resistant communities. For more see <http://www.fema.gov>.

Essential elements of StormReady include multiple methods for communities to receive and disseminate warning information. Also important is for communities to have several ways to monitor the weather and communicate weather hazards to the National Weather Service so we can carry out our primary mission of issuing timely and accurate warnings.

Severe Weather Awareness Week focuses everyone's attention to weather for a short period of time. The StormReady program fosters a continuing education program so that communities maintain a heightened level of weather awareness.

Recognition of a community, typically a county, is a formal process conducted by National Weather Service and emergency management officials. A highway "StormReady Community" sign is your visual cue your county is StormReady. Many Counties in Indiana are StormReady and more will become StormReady this year.

For more information on the StormReady program see <http://www.nws.noaa.gov/stormready>

SAFE ROOMS or TORNADO RESISTANT SHELTERS

The destruction that violent tornadoes and extreme wind events create strikes a sense of fear and awe in everyone. The strongest tornadoes leave no building structure above ground level. But years of research at several universities has shown that small structures can be built to withstand the forces of most tornadoes. These small structures are referred to as Safe Rooms. A Safe Room is essentially a room with concrete walls, floor and ceiling that can withstand the impact of flying or falling debris. For homes, an 8 by 8 foot room would be the typical design and could be a bathroom or closet. Some newer schools in some parts of the country also include Safe Rooms as part of their design.

The Federal Emergency Management Agency (FEMA) has been working with public and private partners to develop a better awareness and initiate projects for Safe Rooms. These can be designed for houses or serve as community shelters. In most cases, retro-fitting existing structures with Safe Rooms is difficult. However, building Safe Rooms in new structures can be fairly simple. For additional information on Safe Rooms see <http://www.fema.gov/mit/saferoom>.



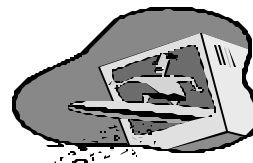
Indiana Tornado Statistics

Indiana averages 20 tornadoes and 4 tornado related fatalities per year. Last year, Indiana had 17 tornadoes. On September 20, 2002, Indiana saw its 2nd longest tornado track ever. Other tornado facts:

- ✦ Tornadoes can move at speeds up to 60 mph, with winds speeds up to 300 mph and sizes over a mile in diameter but typically average less than 100 yards wide with winds speeds around 100 mph and forward speeds around 30 mph.
- ✦ The biggest tornado outbreak in Indiana occurred June 2 and 3, 1990 with 37 tornadoes.
- ✦ The deadliest tornado outbreak in Indiana occurred Palm Sunday 1965 with 11 tornadoes killing 137 people.
- ✦ The Super Outbreak of April 3, 1974 produced 21 tornadoes in Indiana killing 48; nationwide this was the largest tornado event ever recorded with 148 tornadoes.
- ✦ The September 20, 2002, tornado damage was the greatest since the Super Outbreak of 1974 though only 6 tornadoes occurred. The main tornado was on the ground for 112 miles and over two hours.

For more information on tornadoes see <http://www.spc.noaa.gov>.

Internet Links



National Oceanic and Atmospheric Administration (NOAA)

<http://www.noaa.gov>

National Weather Service (NWS)

<http://www.nws.noaa.gov>

NWS Office of Meteorology

<http://www.nws.noaa.gov/om>

Skywarn

<http://www.skywarn.org>

Storm Prediction Center

<http://www.spc.noaa.gov>

NWS Indianapolis

<http://www.crh.noaa.gov/ind>

Indiana Department of Education

<http://www.doe.state.in.us/safety>

National Climatic Data Center

<http://www.ncdc.noaa.gov>

Interactive Weather Information Network

<http://iwin.nws.noaa.gov>

Federal Emergency Management Agency (FEMA)

<http://www.fema.gov>

American Red Cross

<http://www.redcross.org>

Midwest Climate Center

<http://mcc.sws.uiuc.edu>

NWS Office of Hydrology

<http://www.nws.noaa.gov/om/water>

NOAA Weather Radio

<http://www.nws.noaa.gov/nwr>

Indiana State Police

<http://www.IN.gov/isp>

Climate Prediction Center

<http://www.cpc.ncep.noaa.gov>

National Hurricane Center

<http://www.nhc.noaa.gov>

Indiana State Emergency Management Agency

<http://www.IN.gov/sema>



Fujita Scale

F0—Gale Tornado (40-72 mph) Some damage to chimneys; breaks branches off trees.

F1—Moderate Tornado (73-112 mph) Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.

F2—Significant Tornado (113-157 mph) Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.

F3—Severe Tornado (158-206 mph) Roof and some walls torn off well constructed houses; trains overturned; most trees in forest uprooted.

F4—Devastating Tornado (207-260 mph) Well constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.

F5—Incredible Tornado (261-318) Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile-sized missiles fly through the air in excess of 100 meters (109 yards); trees debarked; incredible phenomena will occur.

National Weather Service
6900 West Hanna Avenue
Indianapolis, IN 46220



<http://www.crh.noaa.gov/ind>

Dave Tucek

Warning Coordination Meteorologist

317-856-0360 x 726



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